

What we know

How to graph a parabola from factored form
How to expand a quadratic from factored form to standard form

What we will be learning

Introducing Factoring
Learning to Common Factor

Work to help you remember

Pg. 203 # 4, 6, 8, 9def, 10abc, 12, 14, 15

Feb 22-11:43 AM

4.1 - Common Factors in Polynomials

Review: $y = ax^2 + bx + c$ → STANDARD Form
 $y = a(x - r)(x - s)$ → FACTORED Form

Factoring is the OPPOSITE operation to EXPANDING
A factored form of an expression will always have at least one set of BRACKETS
Expanded form of an expression will have NO brackets.

Remember Distributive Law:

Expand
 $-2(3x + 5)$ $5x^2(2x^3 + 3x^2 - 6x)$

Apr 11-10:47 AM

4.1 - Common Factors in Polynomials

Review: $y = ax^2 + bx + c$ → STANDARD Form
 $y = a(x - r)(x - s)$ → FACTORED Form

Factoring is the OPPOSITE operation to EXPANDING
A factored form of an expression will always have at least one set of BRACKETS
Expanded form of an expression will have NO brackets.

Remember Distributive Law:

Expand
 $-2(3x + 5)$ $5x^2(2x^3 + 3x^2 - 6x)$
 $-6x - 10$ $10x^5 + 15x^4 - 30x^3$

Apr 11-10:47 AM

Method 1: Common Factors

The **Greatest Common Factor (GCF)** may have two parts:

- 1) **numerical coefficient** (the big # out front)
- 2) **variable part**: if a variable is present in **every** term, use the **lowest** power of that variable

The **GCF** can also be a **group** of terms (with both numbers and variables).

Example 1: Factor
 $-56x^3 + 4x^2 - 16xy$
 $-4x^1(+14x^2 - x + 4y)$
Check
 $(-56x^3 + 4x^2 - 16xy)$ ✓

Nov 17-2:54 PM

Match each of the following. You must match one blue expression with one green expression

$3x - 6$	$2x(x + 5)$
$10x + 20$	$4(x + 5)$
$2x^2 + 10x$	$3(x - 2)$
$4x + 20$	$2(x - 8)$
$2x - 16$	$10(x + 2)$

Nov 17-2:55 PM

Match each of the following. You must match one blue expression with one green expression

$3x - 6$	$3(x - 2)$
$10x + 20$	$10(x + 2)$
$2x^2 + 10x$	$2x(x + 5)$
$4x + 20$	$4(x + 5)$
$2x - 16$	$2(x - 8)$
	$3(x - 2)$
	$10(x + 2)$

Nov 17-2:55 PM

Introduction to Common Factoring

Fill in the space with the necessary number, term or expression

____(x - 3) = 2x - 6	3(____) = 3x - 6
____(x + 5) = 3x + 15	2(____) = 10x + 8
____(x - 4) = 5x - 20	x(____) = x ² - 9x
____(2x - 1) = 4x - 2	2x(____) = 8x ² - 6x
____(3x - 7) = 15x - 35	-x(____) = -x ² - 6x
____(2x - 3) = 2x ² - 3x	30(____) = 30x - 60
____(5x + 2) = 20x ² + 8x	5x(____) = 15x ² - 25x

Nov 17-9:02 PM

FACTOR each of the following expressions. Check if you are correct by using MENTAL distributive Property.

- a) $5x - 10$
 b) $10x^3 + 20x^2$
 c) $24x - 8x^2$
 d) $12x^4 + 4x^3 - 2x$
 e) $35x^2 - 14x$
 f) $24x^2 + 18x + 6$
 g) $7x(x + 1) - 4(x + 1)$

Nov 17-9:15 PM

FACTOR each of the following expressions. Check if you are correct by using MENTAL distributive Property.

- a) $5x - 10$ $5(x - 2)$
 b) $10x^3 + 20x^2$ $10x^2(x + 2)$
 c) $24x - 8x^2$ $8x(3 - x)$
 d) $12x^4 + 4x^3 - 2x$ $2x(6x^3 + 2x^2 - 1)$
 e) $35x^2 - 14x$ $7x(5x - 2)$
 f) $24x^2 + 18x + 6$ $6(4x^2 + 3x + 1)$
 g) $7x(x + 1) - 4(x + 1)$ $(x + 1)(7x - 4)$

Nov 17-9:15 PM

Homework/Classwork

Pg. 203 # 4, 6, 8, 9def, 10abc, 12, 14, 15

Apr 11-11:17 AM

Name: _____
Date: _____

Greatest Common Factoring Worksheet

1. Determine the greatest common factor for the following terms.

a) 42, 63	b) 10, 12, 20
c) $3a^2, 9a$	d) $18a^2, 36a^3$
e) $8a^2b, 16a^3b^2c$	f) $3x^2y, 12x^3y^2, 9x^4y$

2. Factor each of the following. Don't forget you can check your answer by expanding.

a) $7x - 35$	b) $16 + 12x$
c) $8a + 6b - 2c$	d) $10a - 15b + 20c$
e) $4x^2 + 6x$	f) $6a^2 - 3a$
g) $9a^2 - 12a^2 - 6a$	h) $15a^2 - 9a$
i) $12a^2 + 8a$	j) $4m + 8m^2 + 12m^3$
k) $25a - 25b^2$	l) $3x^3 - 6x^2$

Nov 18-12:00 PM

m) $24w^3 - 8w^5$	n) $35x - 15x^2$
-------------------	------------------

3. Write a **binomial** and **trinomial** that have the following as a common factor.

a) 5	b) $4x$
c) $7y^2$	d) $4a^3$

Nov 18-12:00 PM

Attachments

3C, lesson 3, GCF worksheet, 09-10.doc